

length, made with a concave Eye-Glass, I could read at a greater distance with my own Instrument than with the Glass. Yet Objects appeared much darker in it than in the Glass, and that partly because more Light was lost by reflexion in the Metal, then by refraction in the Glass, and partly because my Instrument was overcharged. Had it magnified but 30 or 25 times it would have made the Object appear more brisk and pleasant. Two of these I made about 16 Years ago, and have one of them still by me by which I can prove the truth of what I write. Yet it is not so good as at the first. For the concave has been divers times tarnished and cleared again, by rubbing it with very soft Leather. When I made these, an Artift in *London* undertook to imitate it; but using another way of polishing them than I did, he fell much short of what I had attained to, as I afterwards understood by discoursing the under-Workman he had imployed. The Polish I used was on this manner. I had two round Copper Plates each six Inches in Diameter, the one convex the other concave, ground very true to one another. On the convex I ground the Object-Metal or concave which was to be polish'd, till it had taken the Figure of the convex and was ready for a Polish. Then I pitched over the convex very thinly, by dropping melted pitch upon it and warming it to keep the pitch soft, whilst I ground it with the concave Copper wetted to make it spread evenly all over the convex. Thus by working it well I made it as thin as a Groat, and after the convex was cold I ground it again to give it as true a Figure as I could. Then I took Putty which I had made very fine by washing it from all its grosser Particles, and laying a little of this upon the pitch, I ground it upon the Pitch with the concave Copper till it had done making a noise; and then upon the Pitch I ground the Object-Metal with a brisk Motion

Motion, for about two or three Minutes of time, leaning hard upon it. Then I put fresh Putty upon the Pitch and ground it again till it had done making a noise, and afterwards ground the Object Metal upon it as before. And this Work I repeated till the Metal was polished, grinding it the last time with all my strength for a good while together, and frequently breathing upon the Pitch to keep it moist without laying on any more fresh Putty. The Object-Metal was two Inches broad and about one third part of an Inch thick, to keep it from bending. I had two of these Metals, and when I had polished them both I tried which was best, and ground the other again to see if I could make it better than that which I kept. And thus by many Trials I learnt the way of polishing, till I made those two reflecting Pesppectives I spake of above. For this Art of polishing will be better learnt by repeated Practice than by my description. Before I ground the Object Metal on the Pitch, I always ground the Putty on it with the concave Copper till it had done making a noise, because if the Particles of the Putty were not by this means made to stick fast in the Pitch, they would by rolling up and down grate and fret the Object Metal and fill it full of little holes.

But because Metal is more difficult to polish than Glass and is afterwards very apt to be spoiled by tarnishing, and reflects not so much Light as Glass quick-silvered over does: I would propound to use instead of the Metal, a Glass ground concave on the fore-side, and as much convex on the back-side, and quick-silvered over on the convex side. The Glass must be every where of the same thickness exactly. Otherwise it will make Objects look coloured and indistinct. By such a Glass I tried about five or six Years ago to make a reflecting Telescope of four Feet in length to magnify about 150 times, and I satisfied my self that there wants nothing